



UNITED STATES PATENT AND TRADEMARK OFFICE

mv
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,995	10/07/2003	Larry A. Spiegel	212/507	6656

7590 08/06/2004
Crockett & Crockett
Suite 400
24012 Calle De La Plata
Laguna Hills, CA 92653

EXAMINER

NGUYEN, GEORGE BINH MINH

ART UNIT	PAPER NUMBER
3723	

DATE MAILED: 08/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/680,995

Applicant(s)

SPIEGEL, LARRY A.

Examiner

George Nguyen

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date October 07, 2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Art Unit: 3723

DETAILED ACTION

Receipt is acknowledged of the Ids filed on October 07, 2003 which has been considered and placed of record in the file.

Claims 1-17 are presented for examination.

This application has been filed with formal drawings which are acceptable to the examiner.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuoka et al.'6,435,949.

With reference to Figure 14, col. 16, lines 17-45, Katsuoka discloses the claimed invention except for the ridge extending into the groove.

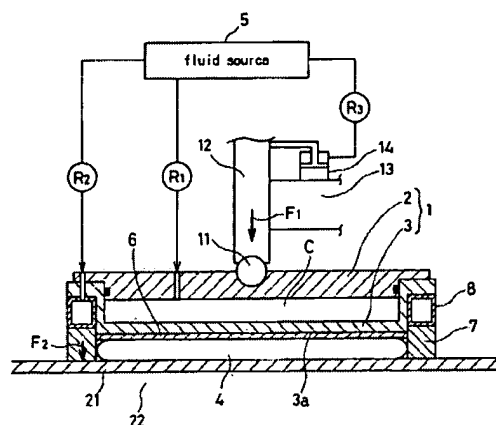


FIG. 14 shows the basic principles of the second aspect of the present invention. In a top ring according to the second aspect of the present invention, an elastic membrane is added to the diaphragm-type top ring shown in FIG. 1. As shown in FIG. 14, the top ring 1 comprises a top ring body 2, a pressing plate 3' for pressing a workpiece, to be polished, such as a semiconductor wafer 4, and an elastic membrane 10 outwardly of the pressing plate 3'. The elastic membrane 10 is made of rubber having strength and durability such as ethylenepropylene rubber (EPDM), fluoro rubber, or silicon rubber. A space between the pressing plate 3' and the elastic membrane 10 is connected to the fluid source 5 through a fluid passage comprising a tube and a connector, and a regulator R₃. A chamber C is defined between the top ring body 2 and the pressing plate 3', and is connected to a fluid source 5 through a regulator R₁. A retainer ring (guide ring) 7 for holding the semiconductor wafer 4 on the lower surface, i.e. the wafer holding surface 10a of the elastic membrane 10 is disposed around the outer peripheral portion of the top ring 1. A fluid pressure bag 8 comprising an annular tube is provided between the retainer ring 7 and the top ring 1. The fluid pressure bag 8 is connected to the fluid source 5 through a regulator R₂. A turntable 22 having a polishing cloth 21 attached thereon is disposed below the top ring 1. The polishing cloth 21 constitutes a polishing surface which is brought in sliding contact with the semiconductor wafer for thereby polishing the semiconductor wafer.

Please note that in the specification, page 14, 1st paragraph, Applicant discloses that the ridge is to help the inflatable bladder to very closely conform to the size of the groove. Applicant has not disclosed that closely conforming to the size and shape of the groove would solve any problems or would significantly provide unexpected results. Please also note that inflatable bladder 8 of the prior art closely conforms to the size and shape of the groove. Thus, it would have been an obvious matter of design choice to change the shape to the groove, since applicant has not disclosed that the ridge solves any stated problem or is for any particular purpose and it appears that the invention would perform well equally well with a rectangular groove of the prior art.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Quek et al.'6,136,710 and Prince'6,602,116 all disclose substrate retaining ring with ridge extending into the polishing pad. Boyd et al.'6,592,437 and Kobayashi et al.'5,584,751 all disclose retaining ring with inflatable bladder. Masuta et al.'6,277,008 and Quek'6,645,057 all disclose composite retaining ring. Brown'6,722,963 discloses wafer carrier with ridge extending toward the back of the wafer. Pasch et al.'5,310,455 discloses a polishing pad with a ridge.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Nguyen whose telephone number is 703-308-0163. The examiner can normally be reached on Monday-Friday/630AM-300PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 703-308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

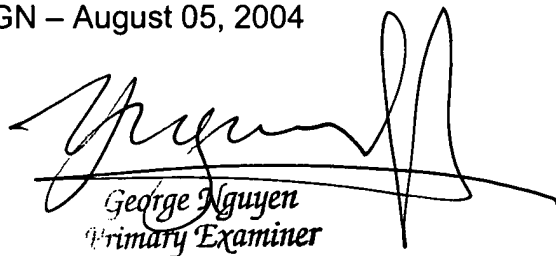
George Nguyen

Application/Control Number: 10/680,995
Art Unit: 3723

Page 5

Primary Examiner
Art Unit 3723

GN – August 05, 2004



George Nguyen
Primary Examiner